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| 10/589,846 | 08/18/2006 | Steven L. VanLaningham | 04CR119/KE (047141-0490) | 2789 |
| Kyle Epple Rockwell Collins Inc 400 Collins Road NE Cedar Rapids, IA 52498 | | | | |
| 7550 05/28/2009 | | | | |
| EXAMINER | | | | |
| PATHAK, SUDHANSHU C | | | | |
| ART UNIT PAPER NUMBER | | | | |
| 2611 | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/589,846

Applicant(s)

VANLANINGHAM ET AL.

Examiner

SUDHANSHU C. PATHAK

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-14 and 16-32 is/are rejected.
- 7) ☒ Claim(s) 4 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/083)
Paper No(s)/Mail Date 08/18/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-32 are pending in the application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 recites the limitation "the weighted sum" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-3, 5 & 8-11 are rejected under 35 U.S.C. 102(a) as being anticipated by Tomohiro et al. (EP 0 682 419 B1).

In regards to Claim 1, Tomohiro discloses a method of selecting link metric measurements from at least one of open loop and closed loop measurements, comprising: sending by a first node a first radio communication (Paragraph 9 & Fig. 1, element "BS") {Interpretation: the base station in the reference is interpreted as a first node and this transmits a signal}; receiving by a second node the first radio communication over a communication link (Paragraph 9 & Fig. 1, element "MS") {Interpretation: the mobile station in the reference is interpreted as a second node and this receives a signal transmitted by the base station}; and estimating by the

second node the dynamics and condition of the communications channel using at least one of the variance and mean deviation of link metric measurements, the link metric measurements being at least one of symbol error rate (SER), packet error rate (PER), frame error rate (FER), bit error rate (BER), signal to noise ratio (SNR), and received signal strength (RSS) (Paragraph 17) {Interpretation: the reference discloses measuring at the mobile station, the average of received power (mean) and a power difference between the average received power of current period and the previous period (variance)}.

In regards to Claims 2 & 29, Tomohiro discloses a method of selecting link metric measurements from at least one of open loop and closed loop measurements as described above. Tomohiro further discloses sending by the second receiver, the link metric measurements back to the first node which uses them as its closed loop measurements (Paragraph 10) {Interpretation: The reference discloses a closed loop power control which receives the signal from the mobile station}; and categorizing the dynamics of the communications channel into one of at least two groups, based on the estimates (Paragraph 25 & Fig. 4) {Interpretation: The reference discloses determining the SINR of the received signal and compares it to a threshold thus categorizing the dynamics of the channel (SINR) into two groups i.e. above or below threshold}.

In regards to Claims 3, 5, 13-14, 21-22 & 30, Tomohiro discloses a method of selecting link metric measurements from at least one of open loop and closed loop measurements as described above. Tomohiro further discloses categorizing step

uses estimates from more than one link when multiple nodes are to be communicated with simultaneously (Fig. 1 & Paragraph 25) {Interpretation: The reference discloses determining SINR wherein the interference is the signal from another node when multiple nodes are present}; and selecting, based on the chosen group, the use of at least one of closed loop link adaptation and open loop link adaptation of communication link parameters (Paragraph 22 & Fig. 4).

In regards to Claim 8-11, Tomohiro discloses a method of selecting link metric measurements from at least one of open loop and closed loop measurements as described above. Tomohiro further discloses the channel estimates of the Open Loop are chosen when the ratio of a time interval between updates divided by one of the variance and mean deviation of the link metric measurements falls below a preset value and closed loop when link metric measurements exceed a preset value (Fig. 4, elements "S3"- "S5").

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6-7, 12, 16-20, 24-28 & 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomohiro et al. (EP 0 682 419 B1).

In regards to Claims 6-7, 12, 16-20, 24-28 & 31-32, Tomohiro discloses a method of selecting link metric measurements from at least one of open loop and closed

loop measurements as described above. However, Tomohiro does not explicitly disclose performing measurements are combined in a weighted sum is based on an interval between updates and the variance of the link metric measurements and combining link quality measurements made on multiple diversity channels. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that there is no criticality in performing weighted sum based on an interval between updates this is a matter of design choice so as to discount a prior measured value and emphasis the most current value. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that there is no criticality in implementing link quality measurement on multiple diversity channels this is based on the protocol implemented in the communication system. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that there is no criticality in scaling the metric this is a matter of design choice. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that there is no criticality in selecting the link quality comprises an indication of link margin, link stability, link performance and excepted latency this is a matter of design choice selecting any one of the parameters representing the link quality.

Allowable Subject Matter

8. Claims 4 & 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SUDHANSHU C. PATHAK whose telephone number is (571)272-5509. The examiner can normally be reached on 9am-5pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3042.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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